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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,508	10/28/2003	Glenn Michael Smith	100200471-1	5427

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EXAMINER	
DICHT, RACHEL S	

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,508	SMITH ET AL.	
	Examiner	Art Unit	
	Rachel Dicht	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-57* is/are pending in the application.

4a) Of the above claim(s) *1-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/28/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of the invention of a combination of a printing device with one ore more pens consisting of a power supply generating a voltage output with an integrated circuit configured EXTERNAL to power supply to generate a pulse width modulated signal and a voltage adjustment circuit configured to receive control signal and generate a difference signal in the reply filed on 19 July 2005 is acknowledged. The traversal is on the ground(s) that claims 1, 14, 21, 33, 41, and 53 are drawn generally to adjusting the voltage output of the power supply. This is not found persuasive because claim 1 is drawn to a power supply that generates an output with an adjustment circuit configured to receive a control signal and generate a difference signal. However, claim 33 is drawn to a power supply that receives an output, determines whether the output corresponds to a predetermined level, and generates a control signal EXTERNAL to the power supply being directed to an adjustment circuit.

The requirement is still deemed proper and is therefore made FINAL.

Specification

1. The disclosure is objected to because of the following informalities:

- Control Signal 110 missing from Fig. 2 (page 5 first paragraph).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 21, 24, 25, 30, 32, 33, 35, 38, 40, 41, 43, 44, 47, 48, 49, 51, 52, 53, 54, 55, and 57 are rejected under 35 U.S.C. 102(b) as being anticipated by Wade et al. (US Pat. No. 5,526,027).

In regard to:

Claim 21:

Wade et al. teaches a printing device, comprising one or more pens configured to deposit an imaging medium on a print media; a power supply (15, Fig. 1) configured to generate a voltage output that is coupled to power the one or more pens; an integrated circuit (11, Fig. 1) configured to generate a pulse width modulated control signal, the integrated circuit configured external to the power supply; and a voltage adjustment circuit configured to receive the pulse width modulated control signal and generate a difference voltage to adjust the voltage output of the power supply (refer to column 2 lines 60-67 to column 3 lines 1-2).

Claim 24:

Wade et al. teaches a printing device wherein the voltage adjustment circuit is further configured to generate the difference voltage to decrease the voltage output of the power supply (refer to column 8 lines 40-43).

Claim 25:

Wade et al. teaches a printing device wherein the voltage adjustment circuit includes a feedback network (the line connecting the junction between resistors, R_p and 21, the A/D Converter, 24, to the Controller, 11; Fig. 1) configured to generate a feedback voltage, and includes an integrator circuit to generate the difference voltage (refer to column 3 lines 49-67).

Claim 30:

Wade et al. teaches a printing device further comprising logic configured to vary the pulse width modulated control signal to control the voltage output received from the power supply (refer to column 7 lines 8-19).

Claim 32:

Wade et al. teaches a printing device further comprising logic configured to vary the pulse width modulated control signal to decrease the voltage output of the power supply (refer to column 8 lines 30-35).

Claim 33:

Wade et al. teaches a method, comprising: receiving an output (V_s, Fig. 1) from a power supply (15, Fig. 1); determining whether the output corresponds to a predetermined level of component operation (refer to column 8 lines 40-43); generating a control signal for input to an adjustment circuit, the control signal being generated external to the power supply; and generating a difference signal according to the control signal to adjust the output of the power supply (refer to columns 2 lines 60-67 to column 3 lines 1-2).

Claim 35:

Wade et al. teaches a method wherein generating the difference signal includes generating the difference signal to decrease the output of the power supply (refer to column 8 lines 29-34).

Claim 38:

Wade et al. teaches a method further comprising varying the control signal to control the output received from the power supply (refer to column 8 lines 28-36).

Claim 40:

Wade et al. teaches a method further comprising varying the control signal to decrease the output received from the power supply (refer to column 8 lines 29-34).

Claims 41 and 53:

Wade et al. teaches a method, comprising; generating a voltage output (V_S, Fig. 1) with a power supply (15, Fig. 1); coupling the voltage output to powered components of a printing device (refer to columns 2 lines 65-67 and column 3 lines 1-2), the powered components including one or more pens that deposit an imaging medium on a print media when powered to turn-on (refer to columns 2 lines 65-67 and column 3 lines 1-2); determining whether the voltage output of the power supply corresponds to a predetermined pen turn-on energy (refer to column 8 lines 40-43); generating a pulse width modulated control signal for input to a voltage adjustment circuit (column 3 lines 34-44); and generating a difference voltage with the voltage adjustment circuit to adjust the voltage output of the power supply (refer to columns 2 lines 60-67 to column 3 lines 1-2).

Claims 43 and 57:

Wade et al. teaches a method and printing device wherein generating the difference voltage includes generating the difference voltage to decrease the voltage output of the power supply (refer to column 8 lines 29-34).

Claim 44:

Wade et al. teaches a method further comprising dividing the voltage output down to a feedback voltage with a voltage divider circuit (R_p and 21, Fig. 1) (refer to column 3 lines 58-62).

Claims 47 and 55:

Wade et al. teaches a method and printing device further comprising varying the pulse width modulated control signal to adjust the voltage output received from the power supply such that the voltage output corresponds to the predetermined pen turn-on energy (refer to column 4 lines 23-30).

Claim 48:

Wade et al. teaches a method further comprising varying the pulse width modulated control signal to control the voltage output received from the power supply (refer to columns 2 lines 65-67 to column 3 lines 1-2).

Claim 49:

Wade et al. teaches one or more computer-readable media comprising computer executable instructions that, when executed, direct a printing device to: determine whether an output from a power supply corresponds to a predetermined pen turn-on energy that powers one or more pens which deposit an imaging medium on a print media (refer to column 7 lines 8-11); generate a

control signal for input to an adjustment circuit (refer to column 7 lines 14-19), the control signal configured to be generated external to the power supply; and generate a difference signal according to the control signal to adjust the output of the power supply (refer to columns 2 lines 60-67 to column 3 lines 1-2).

Claim 51:

Wade et al. teaches one or more computer-readable media further comprising computer executable instructions that, when executed, direct the printing device to generate the difference signal to decrease the output of the power supply (refer to column 8 lines 27-34).

Claim 52:

Wade et al. teaches one or more computer-readable media further comprising computer executable instructions that, when executed, direct the printing device to adjust the control signal to control the output from the power supply such that the output corresponds to the predetermined pen turn-on energy (refer to column 4 lines 23-30).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wade et al. (US Pat. No. 5,526,027) in view of Chang et al. (US Pat. No. 5,541,628).

The device of Wade et al. DIFFERS from claim 22 in that it fails to teach a printing device wherein the integrated circuit is further configured to generate the pulse width modulated control ssignal such that the power supply voltage output is adjusted to correspond to a desired print quality of the printing device.

However, Change et al. teaches a printing device wherein the integrated circuit is further configured to generate the pulse width modulated control signal such that the power supply voltage output is adjusted to correspond to a desired print quality of the printing device (refer to column 7 lines 55-67 to column 8 lines 1-9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Wade et al. to incorporate a pulse width modulated control signal such that the power supply voltage output is adjusted to correspond to a desired print quality as taught by Chang et al. for the purpose of higher quality printed images.

6. Claims 23, 34, 42, 50, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wade et al. (US Pat. No. 5,526,027).

In regard to:

Claim 23:

Wade et al. teaches a printing device wherein the voltage adjustment circuit is further configured to generate the difference voltage to increase the voltage output of the power supply (refer to column 3 lines 34-44).

However, Wade does not explicitly state that the difference voltage can be used to increase the voltage output, it can be inferred that by adjusting the voltage means to either increase or decrease.

Claims 34, 42 and 56:

Wade et al. teaches a printing device wherein the voltage adjustment circuit is further configured to generate the difference voltage to increase the voltage output of the power supply (refer to column 3 lines 34-44).

However, Wade does not explicitly state that the difference voltage can be used to increase the voltage output, it can be inferred that by adjusting the voltage means to either increase or decrease.

Claim 50:

Wade et al. teaches one or more computer-readable media further comprising computer executable instructions that, when executed, direct the

printing device to generate the difference signal to increase the output of the power supply.

However, Wade does not explicitly state that the difference voltage can be used to increase the voltage output, it can be inferred that by adjusting the voltage means to either increase or decrease.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Wade et al. to explicitly state a difference voltage can be used to increase the voltage output for the purpose of utilizing new print heads in a printer.

7. Claims 26, 27, 28, 29, 36, 37, 45, and 46 rejected under 35 U.S.C. 103(a) as being unpatentable over Wade et al. (US Pat. No. 5,526,027) in view of Ivankovic (US Pub. No. 2004/0223271).

In regard to:

Claim 26:

Wade et al. teaches a printing device wherein the voltage adjustement circuit includes a feedback network configured to generate a feedback voltage, and includes an integrator circuit configured to generate the difference voltage (refer to columns 2 lines 60-67 to column 3 lines 1-2 and column 3 lines 34-44).

It is noted, however, that Wade et al. fails to teach the feedback network includes a voltage divider circuit configured to divide the voltage output from the power supply down to the feedback voltage that is applied to the power supply, and the integrator circuit includes a buffer circuit configured to receive the pulse width modulated control signal, and includes a DC filter configured to filter the pulse width modulated control signal and generate the difference voltage to vary the feedback voltage.

However, Ivankovic teaches the feedback network includes a voltage divider circuit (44, Fig 2) configured to divide the voltage output from the power supply (62, Fig. 2) down to the feedback voltage that is applied to the power supply, and the integrator circuit includes a buffer circuit (48, Fig. 2) configured to receive the pulse width modulated control signal, and includes a DC filter (R6, Fig. 2) configured to filter the pulse width modulated control signal and generate the difference voltage to vary the feedback voltage (refer to Paragraphs [0021] and [0035]).

Claim 27:

The device of Wade et al. DIFFERS from claim 27 in that it fails to teach a printing device wherein the DC filter is further configured to generate the difference voltage to decrease the feedback voltage such that the voltage output of the power supply increases.

However, Ivankovic teaches a printing device wherein the DC filter is further configured to generate the difference voltage to decrease the feedback voltage such that the voltage output of the power supply increases (refer to paragraphs [0021] and [0035]).

Claim 28:

The device of Wade et al. DIFFERS from claim 28 in that it fails to teach a printing device wherein the DC filter is further configured to generate the difference voltage to increase the feedback voltage such that the voltage output of the power supply decreases.

However, Ivankovic teaches a printing device wherein the DC filter is further configured to generate the difference voltage to increase the feedback voltage such that the voltage output of the power supply decreases (refer to paragraphs [0021] and [0035]).

Claim 29:

The device of Wade et al. DIFFERS from claim 29 in that it fails to teach a printing device wherein the feedback network further includes an RC time constant circuit configured to limit the voltage output during start up of the power supply.

However, Ivankovic teaches a printing device wherein the feedback network further includes an RC time constant circuit (C1 and R6, Fig. 2) configured to limit the voltage output during start up of the power supply (refer to paragraph [0035]).

Claims 36 and 45:

The device of Wade et al. DIFFERS from claims 36 and 45 in that it fails to teach a method a wherein generating the difference signal includes: buffering the control signal with a buffer circuit; and filtering the control signal with a DC filter to generate the difference signal that varies a feedback signal to the power supply.

However, Ivankovic teaches teach a method a wherein generating the difference signal includes: buffering the control signal with a buffer circuit (48, Fig. 2); and filtering the control signal with a DC filter (R6, Fig. 2) to generate the difference signal that varies a feedback signal to the power supply (refer to paragraphs [0021] and [0035]).

Claims 37 and 46:

The device of Wade et al. DIFFERS from claims 37 and 46 in that they fail to teach a method further comprising reducing the output from the power supply during start up of the power supply with an RC time constant circuit.

However, Ivankovic teaches a method further comprising reducing the output from the power supply during start up of the power supply with an RC time constant circuit (C1 and R6, Fig. 2) (refer to paragraph [0035]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Wade et al. to include a voltage divider circuit, a buffer circuit, and a DC filter as taught by Ivankovic for the purpose of improving efficiency, simplicity in design, and responsiveness.

8. Claims 31 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wade et al. (US Pat. No. 5,526,027) in view of Hancock et al. (US Pat. No. 4,835,669).

In regard to:

Claim 31:

The device of Wade et al. DIFFERS from claim 31 in that it fails to teach a printing device further comprising logic configured to vary the pulse width modulated control signal to increase the voltage output of the power supply.

However, Hancock et al. teaches a printing device further comprising logic configured to vary the pulse width modulated control signal to increase the voltage output of the power supply (refer to column 3 lines 2-12).

Claim 39:

The device of Wade et al. DIFFERS from claim 39 in that it fails to teach a method further comprising varying the control signal to increase the output received from the power supply.

However, Hancock et al. teaches a method further comprising varying the control signal to increase the output received from the power supply (refer to column 3 lines 2-12).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Wade et al. to include logic configured to vary the control signal to increase the output as taught by Hancock et al. for the purpose of maintaining a constant voltage across a load.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel Dicht whose telephone number is 571-272-8544. The examiner can normally be reached on 7:00 am - 3:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RSD

August 16, 2005

8/18/05

MANISH S. SHAH
PRIMARY EXAMINER